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STATE DOCUMENTS

CENTER LINE

VOL. 3 NO. 1 JANUARY 1940

MONTANA HIGHWAY DEPT.
OPERATORS DAILY EQUIPMENT RECORD

MHD NO. MHD 1940 MAKE AND TYPE Leap Year
DIV NO. 7 LOCATION Havre
OPERATOR Division Forces DATE 1-1-1940

MILEAGE IN _____ EQUIPMENT TIME OUT 12-31-40
MILEAGE OUT _____ EQUIPMENT TIME IN 1-1-40
1. DAYS MILEAGE _____ 2. TOTAL EQUIPMENT TIME 366 Days
HOURS LOST DUE TO BREAKDOWN 10 Days
NATURE OF BREAKDOWN Holidays

3. AUTHORIZATION	CODE	TYPE OF WORK	HRS. USED

Happy New Year!

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V.2 no.1
1940

Published Monthly by the Montana Highway Department

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MEET

W. E. GOGGINS, Project Engineer. Bill was born in Havre, his father being a well known railroad man who worked out of Havre for many years. Not liking to be tied down to a single track, Bill took to the highway in 1926 as a chainman and has been working practically ever since. The crop of wild oats which he industriously planted failed to sprout and he has settled down to sober living and hard work, not even celebrating St. Patrick's day any more. He is married and Pat and Bill, his two youngsters, occupy all of his spare time.

+

GLENN A. LEARN, Acting Project Engineer. Glenn first began work with the department way back in the days when men were men and you had to be tough to take it. Caught in a weak moment, he admitted his intentions to the preacher and is now endowed with a wife and son. Before his entry into highway building, he and General Pershing took a tour over to France. Not liking the attitude of the people they encountered they put a quick end to the argument in progress there and came home. Because he shows great favoritism towards the New York Yanks he has been up in the bucks during recent years.

+

EARL DAVIDSON, Rodman. Earl's brilliancy was first discovered by the Highway Department in 1934. Prior to this time he had taken a turn at managing a grocery store for a large firm and after this he was an alibi man for a contractor. Due to his frequent assignments on and in the proximity of the various Indian reservations in this vicinity, he has become instilled with the grandeur of wild life. Armed only with a picket and rod, he is a worthy adversary for such wild beasts as mosquitoes. Earl is blessed with a wife and two youngsters.

+

DONALD CREMANS, Chainman. "Doc" is a wily little fella who has evaded all the snares of "La Femme". In fact he is downright rude to any starry-eyed advances. This worth adversary of women first punished the stake with the Highway Department in 1936. Since that time, with the exception of intervals when he failed to avoid the downward stroke of the traditional axe, he has been almost exclusive property of the Havre division. He is particularly desirable as he adds considerable weight to any survey party.

+

JAMES J. O'RILEY, Chainman. Jim has also avoided the fatal "I do." This is perhaps due to the fact that he might be called upon to forego a very delightful hobby. Connoisseuring, so to speak. Yimmy yoined the forces along about 1935 A.D. Since that time he has worked exclusively for the Department with, of course, the usual dormant periods. Mister O'Riley is also an "under cover" salesman for the particular make of car which he drives. "No better car built," says he. His great ambition is to cut his time between Chinook and Havre, a distance of 20 miles, from 13 minutes to 12 minutes.

+

ARNOLD QUAAMEN, Division Clerk. Arnold was born in Wisconsin and came to Montana in 1911 at the age of two, bringing his parents with him. He went to work for the Highway at Glendive in 1934 as a gravel checker and in 1935 taught school for a few months. Having taught the kids all he knew, he went back to work for the State Highway in the Plans Division in Helena, and was transferred to Havre as division clerk in 1936. He is married and has one little girl two years old.

+

CLARENCE RATCHYE, Statistical Clerk. Clarence was born at Whitefish at a very young age. Some five or six years after this first big event in his life the truant officer threw a net over him, put shoes and pants on him and sent him to Kalispell to school. There he was injected with sundry bits of information which constitutes the grade and high school curriculum. After being forcibly graduated from those institutions, he offered his services to a jewelry firm in Portland and was given the opportunity to dupe as many people as possible in Montana. After a successful campaign he resigned and became an employee of the Planning Survey in 1936. In the years since he alternated between the State Oil Crew and the Planning Survey. In September of 1939 his services were requested in the division office at Havre as statistical clerk, which position he now holds. After damaging the efficiency of the Planning Survey by his departure, he made another bold stroke and withdrew a maiden from that department in October of 1939. Mrs. Clarence now taps out a merry tune on the kitchen range instead of on the traditional typewriter.

+

SHOP FORCES

LESTER MCNEIL, Division Mechanic. Born in Illinois, Mac came to Montana in 1910 and homesteaded near Inverness. From 1921 to 1929 he was in charge of county road equipment in Boulder in Jefferson County. In 1929 he went to the Highway Shop in Helena. The same year he was promoted to the shop at Havre where he has been ever since. During all these years Mac has been trying to beat Eddie Cantor's record but has only succeeded in tying him with four daughers and a grandson.

+

JOHN RICHMOND, Mechanic. John first saw daylight in 1909 in Missouri, but came to Montana and took out his citizenship papers in 1916. He is married and has one daughter. He has been at the Havre shop since 1931 and can fix anything from a car radio to a ten-ton truck. His chief hobby is driving his car or inhaling Scotch and Sodas.

+

ROBERT WYLDER, Mechanic. Bob was born in Illinois and has followed the mechanical work since 1915, including a period of two years when he was across the pond keeping the motors in shape for Uncle Sam's pilots. He has been with the State since 1933 and is married. He has one blond and two grease monkeys. His youngest is 6 years of age and advises Bob expertly on motor tune-ups. His hobby is telling stories.

+

ED MEJIE, Mechanic. "Mij" was born in Michigan but followed his parents on a trek to Iowa, North Dakota and finally to Montana. He has had 24 years experience as a mechanic and has been at the Havre shop since 1934. He is married and owns his home. Mij says the way to keep young is to mix one jigger of gin with another jigger of gin and drink quickly.

+

ALFRED CHRISTIANSON, Mechanic's Helper, Truck Driver, Gas Distributor and Sign Painter. Shorty, as he is known to us, was born in the tall corn state of Iowa. He is married and has one daughter. His hobby is trying to teach the shop boys how to sing.

+

A. A. PETERSON, Mechanic's Helper, Carpenter and Blacksmith. Pete has been with us since 1929 and is a bridge builder, cement finisher, boiler maker and what have you. He is married and has two daughters and one son. His hobby is work.

+

A. G. THOMPSON, Watchman and Janitor. Art has been with the Department since 1935. He is married and has one daughter and three sons. He owns his home in Havre. His motto is "Always on the watch."

+

MAINTENANCE FORCES

H. J. PRICE, Maintenance Supt. Hub is a genuine native son, having been born in Chinook in the good old days when water was used only for washing and the cows grazed peacefully in the main street. In 1927 he went to work for the State Highway for a month as a gravel checker and succeeded in stretching out

the month to twelve years to date. Hub wields a wicked brassie and comes in particularly useful to the Havre division when the headquarters golfers need taking down a peg. He also joined the hole-in-one club last summer. He is married and has two fine children, a girl and a boy. The latter is a recent arrival.

+

JOHN MacDONALD, Maintenance Foreman. Jack started work with the department in the summer of 1929. Later he finished law school at Minnesota but couldn't resist the temptation of the great outdoors so he came back to the old state and joined up again with the forces at Havre. Jack was transferred to Shelby in 1937 as foreman. Being the man he is, he couldn't resist home life and is now the proud father of two truck drivers.

+

WILLIAM NEELY, Sectionman, Chinook. Bill is the oldest employee in the division. He started in 1925 with the horses down on the Ft. Belknap Indian Reservation. As the car speed increased, so did Bill. He parted with his broncs and patented a motorized horse grader built out of a Fordson and the best straps from his harness. He has pictures to prove it was the first motorized patrol in the division. Bill has a wicked eye for laying oil.

+

B. F. BEEM, Sectionman, Gilford. "Beam" is another old timer, starting in 1928 with the fan tails. He and his crummy have worked on different sections but finally landed on the Hi-Line. Beam is a two-fisted man (any way you want to go) ready to take a drag at anything. He takes great pride in making a tough oil patch.

+

O. O. TYRDAHL, Sectionman, Shelby. Oby belongs to the class of 1931. During tough weather he spends his time out "looking for danger". He has the beat from Shelby to Conrad and is on the job rain or shine. Snow plowing is Oby's hobby. (Had a chance to broadcast on the Hobby Lobby Program). When the going is the toughest he is at his best.

+

ORWIN GROVEN, Sectionman, Harlem. Orwin is a native son of Blaine County. His beat includes that section from the Phillips County line west to Harlem. He has the reputation of being fleet of foot as he has escaped the wiles of women and is still single. Orwin has mastered the art of handling a motor patrol to perfection.

+

JOHN ROACH, Sectionman, Galata. Jack joined the forces in 1931. Being a man not given to straying, it has been impossible to get him away from the home territory and he has been on sections in the vicinity of Lothair and Galata since he started. A motor patrol operator transferring his machine through Jack's section decided that he might as well help Jack out on his way through. Jack spied him and quickly put him on the run. Since that time, all equipment going through his section carries a white flag.

+

JAMES ALFORD, Sectionman, Big Sandy. Jim and his palace on wheels has the section from Loma north. He is of the old school, always on the job and ready to go at anything when he is needed. He has been with the department since 1931.

+

L. C. DUKES, Sectionman, Cut Bank. Peanuts is of the Izaak Walton school. Where the big fish are you will find Peanuts. Sundays and holidays are dangerous days for them thar fish. He is one of the best truck drivers in the game and has his section east and west of Cut Bank. He started work in 1932.

+

E. LIPSTER, Sectionman, Shelby. Ernie is another outdoor man and his hobby is big game hunting, and he actually gets big game. Ernie has the beat from Shelby to Sweetgrass. He has been with the department since 1932 and is a jack of all trades.

+

FRED NEVINS, Sectionman, Browning. Fred has his section up on the Blackfoot Reservation. According to him,

they have two gib days a year up there, the Fourth of July and the day the wind doesn't blow. Fred's section is no spot for an amateur to start plowing snow because the storms there are really for a man who knows his stuff. Fred started in 1933 and put in a season with an oil crew.

+

HOWARD McKAY, Sectionman, Havre. Howard joined up along about 1934 and for the last six years he has patrolled the sections out of Havre. He is a past master at patching and is an expert at handling anything from a motor patrol to a snow plow.

+

TOM BULMAN, Sectionman, Box Elder. Tom's section on Montana 29 south of Havre. He was drafted in 1936. A quiet fellow who knows his ripping, laying and patching.

+

With men like Wolff, Fehlberg, Brandon, Lucas, Schend, Murphy, Bailey, Huntsberger, Thompson, Christianson, Tangmo, Jackson, Shaffer and Baker they keep the section en rolling and each of these can handle any job they are assigned to. When you size the gang all together, they have something on the ball.

.....

The staff offers its apologies to Division 7 for the delay in getting out this issue. The year end rush, last-minute vacations, holiday spirit and festivities were too much for us, but we'll try to get back to normal with the next number.

Anyway, from where we sit here on page 2 (January 2), it looks as though this issue will be worth waiting for.

.....

Members of the Highway Department in Division Eight were deeply saddened by the death of Joy G. Howe, janitor and watchman, On December 13. Joy had been in poor health for several months. He had worked for the department since 1922 and had been working in Glendive at the time of his death. Joy was an industrious hard worker and his passing is felt as a deep loss to the entire staff as well as the community.

Division Eight also was shocked and saddened by the sudden death of William Carl Medtke, age 33, on December 15. Bill was an employee of the Highway Department since 1929 and during his employment he had acquired many friends. Our deepest sympathy is extended to those closest to him left to mourn his passing.

.....

From Miles City comes a belated invitation (at least it's too late now): "Come down and see our beautifully decorated Xmas trees -- they are second to none. Four trees glisten and shine on the front lawn of the division office and with the aluminum background, the trees really present a beautiful picture. Well, even if you can't drop down and gaze at the beauties, all the gang in Division Eight wishes everyone a MERRY CHRISTMAS AND A GREAT BIG HAPPY NEW YEAR!!"

.....

THE SEVENTH DIVISION
BY
A. G. MIDDLETON
DIVISION ENGINEER

Finding ourselves faced with the necessity of providing enough material to fill the pages of the forthcoming number of the CENTER LINE, and having postponed the ordeal to the last possible moment, in keeping with our general practice when confronted with a difficult assignment, we have finally settled down to a few evenings of slow, painful and laborious composition.

Who initiated this scheme of making each division responsible for one issue of the CENTER LINE anyway? Nowadays a highway engineer, in addition to some slight knowledge of bituminous materials, grades, alignment, cross-sections, curves - horizontal, vertical and perhaps feminine - has to be a lawyer of sorts, something of a right of way agent, an expert on equipment and more or less of a diplomat. Isn't that enough without making a scribbler out of him? If we fall down on this attempt it would be well to remember that our previous experience along these lines has been limited to concocting more or less ingenious memos to Helena in explanation of various failures to rigidly comply with instructions.

This whole crazy idea probably originated in the fertile brain of Bob Fletcher who always takes unto himself great credit for the CENTER LINE while seeing to it that someone else does all the work. We've know Bob since he was a kid and he always did have a way with him. Funny though how men change as time goes on. In those good old days his mind certainly was not running to literature.

Our first idea naturally was to crib a few articles from various publications, work in a little local atmosphere, and palm them off as our own. A little reflection convinced us, however, that we would never get by Bob with this little device as he has probably used it himself from time to time, so we decided to get down to cases and boost the Havre Division all we could.

A careful perusal of the Proceedings of the Bituminous Conference not producing the needed inspiration, we looked through a few old issues of the CENTER LINE and happened to run across an article on the Miles City Division by our old friend Slim Sanders. This article was a masterpiece of imagination, more or less authentic information, and pure invention. Having nothing but a few scoria buttes and a river an inch deep for scenery, Slim bore down heavily on the wide open spaces and immense distances of his domain. The same general description would apply equally well to the Sahara Desert but his story reads like a real estater's dream of Florida or California.

Although we lack Slim's rose colored glasses and facile flow of language, particularly the ease with which he always makes two long words do the work of one short one, we nevertheless have much better material to work with, or at least we would have had if Ray Kuhns hadn't slopped over the mountains and calmly appropriated our park for his own article in

the last CENTER LINE, thereby cramping our style to a considerable extent and confining us more or less to the prairie section.

The Havre Division includes Blaine, Hill, Liberty, Toole, Glacier and parts of Chouteau and Pondera Counties and has three hundred and sixty-three miles of oiled highway, mostly patches. The principal highway, U.S.#2, running east and west through the division, although represented on the traffic flow map by a rather skimpy line, is the best and shortest route between the Twin Cities and Glacier Park. About thirty years ago, when the scenic beauties of Glacier Park were just beginning to attract attention in the East, the Glidden tour was organized in the Twin Cities, largely through the efforts and enterprise of Mr. Louis Hill of the Great Northern Railway. This tour was in the nature of a race between the various makes of cars of that period, from Minneapolis to Glacier Park, the winner being determined partly on elapsed time between the two points and partly on the condition of the car if and when it crossed the finish line. A Great Northern special train accompanied the tour, carrying mechanics, spare parts and emergency repairs, but even at that several cars never finished the race, being hopelessly bogged down in the bottomless mud of the old trails.

Out of the experiences of the Glidden Tour the idea of an all weather highway to Glacier Park was born and since that time many public spirited citizens of Northern Montana have given freely of their time and energy with that one object in view. Many of these men lived to see the completion of the Montana section of this road which now stretches from North Dakota to the Idaho Line. Passing through the prairie farming section of the eastern part of the State, it runs close to the greatest earthfill dam in the world near Glasgow and from Glasgow it follows the irrigated Milk River Valley for one hundred and sixty miles to Havre where another great dam impounds the waters brought down from the mountains one hundred and fifty miles to the west to irrigate the valley. It passes through the great oil fields of Shelby and Cut Bank, along the southern edge of Glacier Park, through the Marias Pass to the summit of the Continental Divide where we will leave it to Ray Kuhns to carry on to the Idaho Line.

In the Havre Division it passes through two Indian Reservations (11% Federal Aid) where the remnants of once powerful Indian tribes live and make life interesting and slightly hazardous on the highways with their assortment of decrepid second hand cars.

In the not far distant future, when the Fort Peck and the Marias irrigation projects become realities and new homes for tens of thousands of people are created, U. S. #2 will rate a wider line on the traffic flow map.

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Thoralf Rivenes of the Testing Lab apparently finds a certain scarcity in Helena, for he recently traveled 166 miles to a rendezvous, traveled the same distance back to Helena, and lost a night's sleep, all for 16 minutes of necking. Whether or not it was worth the trip we cannot say, as this pastime is not one of our proclivities, but we would be willing to take a chance on traveling 16 miles for 166 minutes of the same.

.....

GOT ANYTHING TODAY MISTER
By Quammen

I'm sitting there gazing into the crystal ball when in comes the boss sweating and fuming. I've got to have more he says. More what I says. Don't sit there and ask me what he yells. A blooming newspaper office this is. City editor's desk is what I got and he walks over and gives the plans case a wallop and glares at the prints of the new jobs coming up. I began to suspicion what he is talking about partly because that is all I've heard for a week and partly because that's what I am thinking about too.

The telephone rings and I dives for it thinking maybe one of the boys has finally come across with a story. A sweet young voice informs me that she is contemplating a visit with her husband's folks in Great Falls in about a week and do I think it will be storming then. I gently reminds her that the weatherman has established quite a reputation for making those guesses and would it be all right if she called him. Of course I adds she could bet her bottom dollar that if it stormed she could get through as we just had some plows built especially for clearing the roads of snow. I then askes her if I can interview her when she gets back on behalf of my magazine but she hangs up.

I hear a lot of swearing and some paper being torn up in the other room and I sigh. Another good article just went in the basket. I walks into the drafting room and gives the boys a cheery Hi Fellas got any stuff to hand in and with that clamor you usually hear around an undertaker's place of business they all climbed down off the stools and stealthily began to surround me. I sees quick like a flash that I have overstayed my welcome and makes preparations for departure. My preparations and departure are all one and all I lose is a little skin off the back of my neck.

Maybe, says I brightening, the boys in the shop got something. I go over and open the door and by golly it is sure quiet. I can't see anybody either. I starts walking around and finally I stumbles over a pair of legs under T-75. I gets down on my knees and looks under and there is one of the boys with a piece of paper and pencil writing away and he don't even know I'm there. Man Oh Man here's something says I and starts crawling under. I gets part way under and I bumps my head. The bump doesn't hurt but here is a pan full of oil right where the floor board should be and that goldarned pan of oil comes down right where that man is writing. By golly it sounds just like the Chinese army is invading the shop. I thinks maybe the best place is right there under good old T-75 but this guy keeps trying to stick his finger in my eye and then somebody grabs my legs and out I come. Believe me it looks like I am a foreign spy instead of just one of the boys. Well I never hits the sill going out and it is mighty painful for me to get up.

I staggers over to the office and drags myself over to my chair. Division Seven number. Phooey.

.....

A QUARREL

We were strolling down the lane
In the twilight, cool and bright,
As we did most every evening
Sometimes late at night.

She walked a pace ahead of me
Quite unconcerned, I'd say,
With all my endless chatter
Of the things she'd done that day.

I suppose I was quite hasty
In my judgment of her ways,
For she'd been a boon companion
As we strolled on other days.

I could have been more gentle
When suggesting we depart,
And I could have held the temper
Which I knew would break her heart.

Her large brown eyes were misty,
As she sundered on ahead.
I called her names untruthful
And she slowly shook her head.

I called her dunce and slapped her,
Made her move from side to side,
Any affection that I had ever known
From her I tried to hide.

Not once a sound did she utter
Nor a bit of violence show,
As I stormed along behind her
That my anger she might know.

At last we reached the gateway
Where I stopped to make it right,
But she walked right on past it,
Strolling off into the night.

I called to her and waited,
I was quite impatient too,
But I knew I was forgiven
When I heard her answer "Moo".

.....John H. Richmond.....

FORT ASSINNIBOINE

By Clarence Ratchye

The old U. S. Government post of Fort Assinniboine is located approximately two miles southwest of Havre on Montana 29. At the time the fort was built it was impossible to designate its location by this description as there was no town of Havre and the construction of oiled highways in Montana was begun after the fort was abandoned by the federal government. Yet so closely related is present day life to the frontier post that there are men living in Havre who have been in this locality since the inception of the fort. It was named after the Assinniboine Indians and its story includes much more than just local history.

After the battle of the Big Horn in 1876 when the Sioux tribe massacred Custer and his cavalry, the Indians escaped to Canada. Here they were treated as political refugees by the Canadian government and allowed to remain upon the condition they would cause no trouble. However, at that time buffalo and game was plentiful in the territory of Montana but scarce in Canada. The Indians were especially dependent on the buffalo for food, clothing and shelter so they made frequent raids into Montana to hunt. When this happened U.S. troops had to come from distant posts to capture or drive the Indians back to Canada. The U.S. government wanted to place the Indians on a reservation in the United States but so long as they could cross the border at will the Indians refused to surrender. The solution of the problem was to establish a post close to the buffalo country so the Indians could be kept on the Canadian side of the border. Through the efforts of Major Martin Maginnis, who was a delegate to Congress from the Territory of Montana, the War Department decided to build a post in northern Montana.

In 1878 Congress passed a bill to establish the post and made an appropriation to start construction. The site was selected that fall and bythe spring of 1879 the 18th U.S. Infantry, previously stationed in Atlanta, Georgia, had arrived there. The regiment had to move by rail to Bismarck, North Dakota, and from there by steamboat on the Missouri to a point about 40 miles from the post near what is no Virgelle. There it was joined by two troops of the 2nd U.S. Cavalry which had been stationed at Fort Custer. General T. H. Ruger, a Civil War veteran, was the first commanding officer of the post.

After the post was established, the Indians decided to surrender to the U.S. government. In the winter of1880 the entire tribe of the Sioux surrendered at Fort Buford and were kept there until the spring of 1881 before being sent to their reservation at Standing Rock, North Dakota.

It was necessary to continue to keep troops stationed at Fort Assinniboine even after the disposition of the Sioux had been settled as raiding parties of the Blackfoot and Blood tribes were continually stealing horses and the troops from the fort were kept busy chasing the marauders.

Fort Assinniboine was one of the largest posts in the United States for a long time. It covered an area 30 miles in length by 15 miles in width. There were both mountains and plains within its borders so it made

an ideal location for a training ground. Many regiments of infantry and cavalry were stationed there during the life of the post.

In 1888 the Indian Reservation was opened for settlement and in 1889-91 the town of Havre became established. The country was being settled and the Indian had been pacified. A few troops remained until 1911 when the fort was sold to the State of Montana for $5,000. It is now the Northern Montana Experiment Station.

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DIVISION NO. 7 HEADQUARTERS

We believe that a brief description of our Division Headquarters would not be out of place. We consider our setup here as being excellent. In the first place we are located in a very respectable portion of town, which is unlike our good friends over in that division which carries the identification numeral eight. We are located on U.S. 2 at the east end of Havre.

Our setup includes a warm storage building 30' x 75', a cold storage shed 26' x 144', a shop 40' x 94' and an office building 22' x 36'. These buildings have all been erected since 1929 so they are comparatively new. Our shop was the last to be built, which was in 1937.

Recently gas was installed in our boiler and with automatic control we heat one storage shed, the paint and wash room in another building, and our shop. Our office has a separate heating unit.

We have, of course, our gasoline and road oil storage tanks. We also have one road oil storage tank which is insulated and in which we can heat the oil.

Our storage yard is 450' long and 120' wide. Because of this fact, together with the fact that we have buildings in the yard and also numerous pieces of equipment painted highway red, it is extremely difficult to miss when going through Havre. We cordially invite you to stop in and pay us a visit.

.....

From Wolf Point we learn that Egbert "Eggs" Aune spent his regular leave of absence at the Matador Ranch, south of Malta, herding sheep, and that Harold Tilzey, Project Engineer at Malta, was the star witness in Federal Court in Great Falls. We hope that Harold is back with the State, although he will have to pay both State and Federal Income Tax in spite of his connections.

The rest of the boys in Division Four planned vacations during the holidays, but seem to be of a more secretive nature, except for Koester, the Division Lover, who planned a trip to California to see his folks. (We alsways said that one should get married at home -- how about it, Walt).

.....

INCIDENTS IN CONNECTION WITH SNOW REMOVAL

By

Arnold Quammen

Perhaps 95% of the people traveling on our highways do not realize the hardship which is connected with snow plowing, not to mention the cost. It is a tough job at its best. Now mind, I am not speaking from practical experience but merely from observation and from first hand information. However, from what I have observed and from what I have been told by those truck drivers who have actually participated, the picture which I have is fairly complete.

The first thing which struck me as being singular was the fact that none of the men considered the fact that they were forced to undergo extreme hardship a matter of great importance. Their satisfaction that the job to which they had been assigned had been thoroughly completed more than compensated them for the discomfort which they had experienced. Probably the first thing which entered their minds after the brief report "She's open" was some incident which to them was humorous. Incidents which were at times bordering on tragedy. For example, a few seasons ago a severe storm swept over this north country which lasted into days. Two of our men were clearing the road between Cut Bank and Browning, which is probably one of the most desolate sections in the state. The storm had not been too severe when they started but its intensity had increased until the going was extremely tough. Finally due to a breakdown the boys were forced to leave the plow in order to get to a telephone and call for aid.

This was a bad predicament to be in as telephones in that vicinity were as plentiful as bathing beaches in Siberia. However, they worked themselves to the railroad track and followed this until they came to a small building in which was a telephone belonging to the railroad company. They forced the lock on this and got into the building which was just large enough for the two of them to crowd into. They attempted to make a call but because of the extreme cold the transmitter had frozen what moisture there was in it and they could not be heard. However, they could hear and they found that calls were being made up and down the line attempting to locate them. This was very aggravating for if they could have made themselves heard they could have furnished the information immediately.

By this time they were getting very cold so they lit a torch which they found in the shack. This furnished a small amount of heat but the fumes and smoke drove them out every two or three minutes. They also were trying to warm the transmitter so they could talk over the telephone. After several hours they made themselves heard and in due time a plow got in to their equipment and they were brought out. Both had suffered severely from the cold. To them, however, this incident was made humorous because of the fact that the smoke from the torch had blackened their faces until they were hardly recognizable.

Several other occasions arose which, although they did not cause any great hardship, served to show how frantic and excited a stranded traveler may become. In one instance a plow was working north out of Shelby during a storm. They came upon a car which had entered a drift

and could not go through nor back out. In order to plow out the drift it was necessary to remove the car so they hooked on to the back end to pull it out backwards. The owner of the car objected very seriously and when asked why he stated definitely that he was not going that way and that he wanted to go ahead.

Another time a traveler had been stalled for some time and when he was finally pulled out he reached in his pockets and then held out both hands filled with currency and silver. The boys of course refused.

It is a funny thing to hear the boys chuckle gleefully when an operator who has just come in tells about nearly freezing his hands off trying to make some little adjustment on his equipment and which took him some time because of the extreme cold and piling snow.

The operators are not the only ones who have a tough time either. If there is any doubt in your mind, try getting out of a nice warm bed about two o'clock in the morning and go out on the road in a snow storm to repair a piece of equipment. Not only that, but when you get there you'll probably have to lie on your back in the snow and work with bare hands for maybe two or three hours.

Perhaps it might be well to slow up on this part of the subject and try to arouse a little sympathy for the clerks who become dazed and half goofy answering all telephone calls which come in. It seems as though a good old storm is the signal for everybody to try and get out on the highway. However, first they want to be assured that they will be darn fools if they get out before the storm lets up. Occasionally a humorous request will also be made on the telephone. Two years ago we received a long distance call from Kremlin during a severe storm informing us that two men from Havre were stranded just east of Kremlin, but that they were safe as a farmer had taken them in. However, they had requested this person to call from Kremlin when he arrived there and request us to call their wives and assure them of their safety. We were glad to do this, but when we asked for their names the man did not know. After asking him several questions we obtained a lead and succeeded in informing their families. (These two men were not employees of the department).

Another time, believe it or not, we were asked if it would be necessary to wear overshoes and a cap with ear flaps. The man was making a short trip. On numerous other occasions we have been asked to predict the condition of the roads as much as a week or two in advance.

All in all the slight matter of keeping roads open for traffic and keeping the public informed can be very interesting.

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Division Seven claims the record for emptying a truck in the shortest time when Bill Goggins accidently flipped a rattler into a truck-load of men with his line pole.

.....

Also from Division Seven (Dec. 18): "The weather must be good in Great Falls, because our Sno-Go is still here."

.....

"HOW TO BECOME A CONTRACTOR"

By
Tracy Harron
Pennsylvania "Turnpike News"

It was my pleasant duty at one time to edit the "Advice to Young Men" page in one of the leading magazines. Strangely enough, one day I received the following letter:

Clovis, Calif.

Editor,
"Advice to Young Men" . . .
Dear Sir:

I have driven a truck for the General Store for five years. I desire to become a contractor. Please help me.

Respectfully yours,
Alexander P. McSnivet.

My reply was as follows:

Among the various trades and professions, there is hardly one which offers the young man desiring to get ahead in this world the advantages that are his by becoming a contractor. To work among pleasant surroundings, in God's great open spaces, with a group of nature's noblemen as your fellow workers and competitors, with no financial risks, with no worries, is well worth the small effort necessary to reach the goal.

The necessary qualifications for becoming a contractor are few. No previous experience is necessary, though if the young man about to be a contractor has been a truck driver, he will have a very thorough groundwork in the engineering end of the game.

The most rigid requirement is that you have no money. If you are unfortunate enough to possess a little wealth, this can readily be remedied with the aid of a good Bootician, or even with a lady, who may be either a blonde or a brunette. The main thing is that to start being a contractor you must have no money.

Having acquired the necessary qualifications, all that is necessary is that you seek out a member of the Associated Machinery Merchants, or the Associated Equipment Distributors, or both, and tell this equipment dealer that a concrete mixer, several wheelbarrows, some shovels, and a case of Scotch are required. The next morning these will be delivered to your door, and you are now ready to be a contractor.

If you like to motor, it might also be a nice thing if you call on one of the several motor truck agencies. You will find that your reception there is almost as hearty as that which you get at the equipment dealer's. Mention the fact that you are a contractor, and that afternoon a nice, shiny, new truck will be delivered to your yard, if you have one. In case you want two or more trucks, all that is necessary is that you mention your old truck. If you don't own an old truck, a worn out radio, or even an old style Victrola will do, and upon mentioning this, whatever it may be, you will be told that the allowance made will be so many thousand dollars, and that afternoon two or more nice, new shiny trucks will be delivered to you. You may also be the owner of two cases of Scotch, providing you have handled the situation properly.

The next move is to see a bonding company. They will ask you a lot of questions, but by a little thought before answering, you should have no trouble in convincing the bonding company that you own a concrete mixer, several wheelbarrows, some shovels, and maybe even a truck or two. It may be necessary also to prove that you own a case of Scotch, but if you are clever enough, when you get through with the bonding company you will have three cases of Scotch.

(Continued on next page)

You are now a contractor, and a member of one of the oldest and most respected professions. The next thing for you to do is to get a job. Look in one of the trade journals and pick out a job which is located at some pleasant spot. If you enjoy fishing, choose one located in the mountains. If, on the other hand, you enjoy solitude, pick out one located in one of the desert wastes. If you enjoy rural life, pick out a location in one of the lesser known hamlets. The main thing is to locate yourself among pleasant surroundings.

You now come to figuring your bids, one of the most technical phases of being a contractor, and one which has never been mastered even by men who have been contractors for years and years. This puts you on a par with even the most experienced man in the profession. In fact, some beginners will sidestep this issue entirely by getting other contractors to do the figuring, a process known as "subbing the job". You would then merely hire someone to add up the totals submitted by these sub-contractors, and present this total as your bid. However, most contractors prefer to reap the rich rewards entirely for themselves and in such a case you would of necessity submit your own figure.

Anyone who has already had a contract will feel it necessary to use certain figures and facts, but they are usually not reliable and besides, they require a lot of figuring. The beginner should confine himself to a few modest statements, such as two plus two equals four. Do not complicate your figuring with a lot of stuffy detail regarding sand, and cement and labor. To arrive at the figure that you are to put in your bid, take the number off your auto license, divide by four, subtract one-half, and then in order to be certain, subtract one-half of what is left and you will be pleasantly surprised.

This is the figure that you will use to see your name in print and be advised that you have the contract. The balance of what you will have to do need not be mentioned here, as it will be entirely automatic.

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In connection with "isms", it might be well to remember that the fellow who is pulling on the oars hasn't time to rock the boat.

.....

Twice handrunning a certain prominent headquarters engineer has arrived on time to keep an appointment in Division No. 7, thus upsetting the orderly routine of the division. It has always been customary to allow him a margin of from two hours to two days.

.....

A man says to himself before he goes out, "What shall I say?" A woman meditates, "What shall I wear?"

.....

We should behave toward our country as women behave toward the men they love. A loving wife will do anything for her husband except stop criticizing and trying to improve him. We should cast the same affectionate but sharp glance at our country. We should love it, but also insist upon telling it all its faults. The noisy, empty 'patriot', not the critic, is the dangerous citizen.

.....J. B. Priestly.

.....

In Chillicothe, Ohio, Mrs. Harry McNeal bent over to dry herself after a bath, backed into a heater named "Good Luck", branded herself with the name reversed.

.....

Space for rent.

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MINOR DRAINAGE STRUCTURES

By
A. G. Middleton
Division Engineer

The problem of adequate minor drainage structures in connection with the State Highway system is becoming one of increasing importance. While the question is discussed here only in relation to this particular section of Montana, it is not local in character and probably applies to the whole state or at least to that part of the state lying east of the main range of the mountains.

In the earlier years of highway construction no very great attention was given to this phase of the work, construction was comparatively inexpensive, grade lines were low and if a washout occurred, no great damage resulted. As time went on and the standards of highway construction became higher and higher, with a consequent greater investment in dollars per mile, the drainage question became more serious and at the present time is receiving much more consideration than was the case ten or fifteen years ago.

The question of what constitutes adequate drainage, balancing reasonable protection on the one hand against high costs on the other, is still a more or less controversial subject among highway engineers. In this part of the state, sudden storms of cloudburst proportions occur every season. The particular locality in which they will occur is unpredictable nor can it be said that any one locality is more subject to these storms than any other. Every year without exception some portion of the highway in this division is flooded for from two or three hours to several days, causing delay to traffic, repair expense and giving an opportunity to alert property owners to file claims for more or less mythical damages.

It is relatively easy to determine the probable maximum run off for any given drainage area within reasonable limits, taking into account the varying factors of average slope character of soil and vegetation, maximum rainfall, etc., and to calculate from this data, by one or another of several recognized formulas, the size of waterway necessary. While it is of course desirable to work out these calculations with great care, too much weight cannot be given to the results obtained. No formulas, tables or diagrams, however correct within their limitations, can be assumed to be absolutely correct as some of the factors involved are impossible of exact determination and are at the best only a good guess.

The principal factor in determining the maximum run off is the greatest amount of rainfall per hour to be expected. In this connection it might be interesting to note the rainfall figures for June 22, 1938, when one of the most disastrous storms in the history of Havre occurred. These figures are as follows:

6 P.M. to 7 P.M.	.....	1.50 inches
7 P.M. to 8 P.m.	.....	.23 "
8 P.M. to 9 P.M.	.....	.04 "
9 P.M. to 10 P.M.	.....	.01 "
	Total	1.78 "

At the head of Beaver Creek, thirty miles to the south in the Bear Paw mountains, the rainfall for the twenty-four hours was 2.13 inches, which probably all fell during the same period from 6 P.M. to 10 P.M. In this brief time, eleven people were drowned, railroad tracks washed out and numerous bridges and culverts destroyed.

Storms of such magnitude are, however, comparatively rare, occuring on an average only once every ten or fifteen years, and the engineer is doubtless justified in discounting them to a large extent. There is no guarantee, however, that a similar storm will not occur before the backfill has fairly settled around his newly installed culverts and in that event the same old argument comes up. Is it a case of faulty engineering or just plain hard luck? It is generally held that it is not economically feasible to install culverts sufficiently large to take care of extreme conditions. The question then naturally arises in planning the culverts for a new project, "For just what part of the run off, less than the maximum possible, should the culvert be designed in order to be considered adequate?" If some formula, applicable generally to the whole state, can be worked out to answer this question the locating engineer will be less tempted to fall back on the old system, i.e. take a quick glance up the coulee, make a wild guess and take a chance, or play safe and recommend a bridge.

Although, as stated before, most engineers do not believe that it is practical to provide for maximum run off, there does not appear to be sufficient data available to either confirm or refute this belief at present and it might, therefore, be of benefit to study this side of the question further.

If the records of the various government weather bureaus throughout the state covering storms of more than average intensity, say for the pasty thirty years, were collected, tabulated and classified as to duration, rate of rainfall per hour and frequency of occurrence, it should be possible to arrive at a fairly definite conclusion as to just what this factor should be for this state in any formula which might be used. If then a study were made of the drainage areas of several representative projects already built and a comparison of costs made between the culverts as installed and the culverts which would be necessary to carry the probably maximum run off, it is thought that in general the present opinion as to the costs of providing for maximum run off might be modified to some extent. In this connection it might be said that the opinion of most highway authorities that culverts should not be designed to work under pressure does not appear to be valid insofar as sudden storms of short duration are con cerned, provided that the inlet and outlet of the culvert are protected with rip rap.

Some washouts have resulted due to masses of tumbleweeds, carried down by floods, choking the intake of a culvert, which was otherwise adequate, so that the mere fact that a culvert washes out does not necessarily mean that it was too small in the first place nor does the fact that a culvert has remained in place for ten years prove that it is large enough.

In brief, this article is written with the idea in mind of advocating a standard method throughout the state of determining the necessary area of

minor waterways and building to that standard in order to be in as strong a position as possible to resist unwarranted claims for damages as well as to minimize damage to the highway itself.

Spring run off, due to melting snow, has not been taken into account here as it is thought that this run off is in all cases less than the run off due to cloudbursts.

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THE BATTLE OF MILK RIVER VALLEY

By

Hub Price

Maneuvers started before daybreak on October 30th. Wall Street tapes with their best day this year had nothing on the electric counter east of Havre. A final check showed it to be one hour and forty minutes behind the traffic that day. Long before daylight the boys moved into the lines. You could hear exclamations of this sort all along the front: "What do you guys want in here? Can't you read those signs? What's that? Are we on the wrong line?"

As daylight broke you could hear the terrific fire from the right of you, from the left of you, from behind you and from in front of you. The brush lines were bristling with activity. You could hear cries, "That baby is mine, I had the line on him." "There goes one into the brush, circle around that clump and I'll drive him out."

The army moved on all day to the east, covering ground from the north to the south. All day it was a boom-boom here and a boom boom there. Cars were parked four deep on every county road and farmers lane.

Along about 4 p.m. the boys started coming back to their cars and the following is typical: "How many did you get?" A party of four were finally rounded up and were checking over their kill. Two claimed they had too big a nite before starting and the third spoke up and said, "That's o.K. I got mine and damn, I missed the tenth."

A stranger in the valley was interviewed on the events of the day. Quoting the stranger: "I never saw so much country along a river in my life with so few birds. I can't understand why they haven't planted more birds." Quoting the native: "Hell man, you've just seen party of the army that is out, and it's going to last two weeks more. It's no wonder there ain't any birds."

Along toward evening at any bar you could see the boys with feet on the rail and elbows bent, and everybody agreeing what a smart bird that pheasant is.

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At the opening of "The Taming of the Shrew" in Los Angeles, Alfred Lunt and Lynn Fontanne gave swishy late-comers the works. As each laggard strolled or strutted down the aisle, Lunt & Fontanne stopped dead in their lines, she to bow graciously, he to cry "Welcome!" Once he said: "For the benefit of those people who just came in, I'll play the scene again." Did so.

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Sugar Industry in Northern Montana
By
Glenn Learn

The Utah Idaho Sugar Company, a large corporation, became interested in the prospects of growing sugar beets in the Milk River Valley in the spring of 1925. They, with the help of the Chamber of Commerce of Chinook, got a number of the farmers in the valley to sign up to raise a small acreage of beets that spring.

The company obtained a ninety acre site on which to build their factory just east of the town of Chinook on February 19th, 1925. This plant was to cost about one million dollars to build. The main building was to be constructed of steel and brick and was to be 70 feet by 400 feet and three stories high with a storage bin for beets 250 feet by 400 feet.

Some of the reasons for choosing this site was because a spur of the Great Northern Railway Company had already been built along the site; the Montana Power Company line was close by to furnish electric power; a coal supply was a short distance away; the west fork of the Milk River ran through the site to take care of drainage of beet washing process; water was available for washing the beets through the high line canal; a supply of filtered water for washing the sugar was available from the Chinook municipal plant; the valley between Chinook and Harlem was the best developed for raising beets; a gravelled highway ran through the valley, also the Great Northern Railway.

Construction operations started on the plant on February 26th, 1925 with Mr. Woodward and Mr. Cannon in charge. They employed about 300 men during construction. The company dismantled one of their nearly new and most modern plants at Yakima, Washington in order to move the machinery to Chinook to install in the new plant. The factory was completed and ready to operate on October 20th, 1925.

The capacity of the plant is 1200 to 1500 tons of beets per day. This will produce between 3000 and 3100 sacks of sugar. They employ about 320 men during the running season which starts about September 20th and ends about January 20th. They employ a crew of 80 men from one run until the next to make repairs and for maintenance of the plant.

One ton of beets will make about 1/4 ton of wet pulp which is very good feed for stock. The farmers have the first choice of this pulp and have to sign up for the amount that they will need to feed during the winter.

The run in 1925 was started on October 21st and ended on December 10th with approximately 50,000 tons of beets being run through. This year the run started on October 1st and will end about January 20th with about 150,000 tons.

The beets are planted in rows about three feet apart on either fall or spring plowing which has been leveled down very smooth. As soon as the beets are up about two inches they are thinned. Most of the labor used in the beet fields is Mexican or Philippino. The beets are cultivated and irrigated until they are grown when they are ready to be harvested.

A lister is used in digging the beets out of the ground. A large crew of men follows along with large knoves and cuts off the tops. They are then loaded in the trucks and are ready to either be loaded on the cars or placed in the dump piles. There are scales and a machine for taking out the dirt that has fallen off the beets and they are either run into the pile or on the cars by this same machine. Some of the farmers living close to the factory haul there. They are then weighed and put into a large pile where they are ready to be put through the factory.

The beets are brought into the factory on an endless belt. They are first washed to remove all dirt and foreign material and then run through cutters which shreds them into pulp.

First Process: The sugar is washed from the beet pulp in a diffusion battery. This removes all sugar from the pulp and the pulp is carried outside by pipes and water. The juice is all handled by a series of pumps and pipes on the lower floor of the plant.

Second Process: First carbonation - Aklalinity .095 of juice filtered out.
Second carbonation - Alkalinity .020 of juice filtered out.
Carbon Dioxide is added during this process to remove impurities.

Third Process: Juice treated with Sulphur Dioxide and filtered to purify and bleach.

Fourth Process: Juice run through series of evaporators. This removes 70% of the water and is then filtered again.

Fifth Process: Boiled in a vacuum at 40 to 50 degrees Centigrade. This causes the syrup to become grained to white sugar.

Sixth Process: Centrifugal spinners used to remove the sugar from the molasses. This is done by the speed of the spinners which throws the molasses off and the grained sugar sticks to them.

Seventh Process: The sugar is run through a granulator to dry and harden, after which it is ready to sack up for market.

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Walking with a friend one day, Fritz Kreisler passed a large fish shop where a fine catch of codfish, with mouths open and eyes staring, were arranged in a row. Kreisler suddenly stopped, looked at them, and clutching his friend by the arm, exclaimed : "Heavens! That reminds me-- I should be playing at a concert."

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THE DEVELOPMENT AND PRACTICE OF BLUE PRINTING.

BY

GORDON HAYMAN

There is very little written history on the subject of blue-printing, probably due to the fact that it was developed in part from other arts, notably photography. In some of it's more recent ramifications it has returned to the once discarded printing process in a form of lithography, but the true blu-printing process has changed only in refinements of machinery and lighting during more than half a century.

It is said that a process similar to blue-printing was known to the Phoenicians in early Biblical times. According to this record the Phoenicians made opaque drawings on translucent papyrus and used the sun to thus transfer designs of their bodies.

The practical art of blue-printing, however, is of fairly recent discovery and its wide spread use has only come about with the tremendous growth of industrial construction in the twentieth century.

All authorities seem to agree that the discoverer of blue-printing was the famous English astronomer and scientist, Sir John Frederick Herchel, who in 1837 observed that light impressed upon paper coated with silver chloride became tinted with nearly all the colors in the spectrum and who afterwards experimented with other chemicals and actually produced a blue-print design for the construction of his observatory telescope. He is also said to have been the originator of the terms "positive" and "negative" in connection with solar printing, having used these terms for the first time in a report to the Royal Society of England on his experiments.

The process spread rapidly to France, Germany and Switzerland, where many improvements in its practical application were developed. Its first introduction to the United States was in 1876 when the process was brought over and shown by the Swiss at the Philadelphia Centennial Exposition.

Originally blue-printing was accomplished by solar light in much the same way that photographic prints are made. In place of the photographic "negative" a drawing was traced in opaque ink on translucent paper or cloth and in place of the photographic printing paper a blue-printing paper was used. This blue-printing paper was a chemically treated or sensitized paper which, upon exposure to the sun through the translucent tracing cloth and a later washing became a blue-print with the lines of the opaque drawing showing in white.

In an old book of formulas printed in 1884 appears this formula for coating on sensitized paper for blue-printing.

Chemical	Parts by weight
Prussiate of Potash (Red Crystals)	1
Citrate of Iron and Ammonium	1
Water	10

With the exception that Prussiate of Potash is now known as Potassium Terricyanide and that direct current arc lighting is used in place of the sun, whose vagaries become too unreliable for industrial uses, blue-printing is fundamentally the same process that it was a half a century ago. Of course, the machinery for blue-printing has been vastly improved over the makeshift contraptions of that bygone era, but essentially the process itself has not been greatly improved upon.

Even when blue-prints came into general use by architects, engineers and builders, it was thought that the only satisfactory way to make them was by means of sunlight, it being supposed that the solar rays had some effect which could not possibly be duplicated by artificial light of any kind. Thus blue-printing in the early days was subject to the vagaries of the weather and a long spell of rainy or dark weather might seriously delay work on important buildings and engineering projects.

The early users of arc lamps, for blue-printing purposes, most certainly had their trials. Some of the old timers in the business no doubt could relate many amusing and heart-breaking incidents of their early experiences with blue-printing that would make mighty interesting reading.

The first vertical blue-printing machine, using an arc lamp for printing, was brought out by B. J. Hall & Co., of London, England, and very soon thereafter, probably about 30 years ago, they were introduced in this country. As the arc lamp improved in steadiness and reliability, the vertical blue-print machine grew rapidly in favor and in 1905 most of the blue-prints used were made on the vertical machine, although some still clung to the sun frames. There were quite a number of makes of vertical machines in this country at that time, but most of them have passed into discard, and horizontal machines are fast taking their place, excepting for small plants where occasional prints are wanted in a considerable hurry.

One make of vertical machine, called the "Pittsburgh", was equiped with a reversible motor to operate the lamp up and down throughout the cylinder, but that was in the days when small motors were not as reliable as at present, nor as well understood. Another type of vertical machine that was popular at one time was called "Hermann", tilting machine. The frame in which the glass was held was hung in heavy trunions, enabling the operator to tilt the glass to a horizontal position for loading and unloading. This arrangement worked very well excepting when the operator would forget to raise his lamp before swinging the cylinder to the horizontal position, when bing would go a hundred dollar glass. Many other devices were tried, but only three makes of vertical machines survive, and as stated above, that demand for them is fast diminishing. To be sure, most commercial blue-printers think they must have one vertical machine for odds and ends, patent office drawings, etc., but the facts are that the demand for quality prints has so increased in recent years that it has become practically impossible for the most expert glass benders to make glass so perfect as to give perfect contact, and meet present day requirements. Some of the blue-print machine manufacturers have spent a good deal of time and money in investigating the possibility of producing a metal mould that would provide perfect glass but without success.

Turning now to the horizontal continuous blue-printing machines, it was about 1903 that two engineers, Everett in the West and McAdam in the East, on almost the same day, conceived the idea of making use of the Cooper-Hewitt mercury vapor lamp, then just coming into use for factory illumination, for blue-printing purposes, enclosing one or more of these lamps in a revolving glass cylinder. Their applications reached the Patent Office at the same time, and being good scouts, they decided to combine their efforts rather than fight it out in courts.

At about this time the Federal Machine was placed on the market. A roll of tracing cloth was used in this machine as a medium for holding the blue-print and tracing in contact with a felt covered cylinder, the tracing and blue-print paper being carried past a bank of arc lamps. It was necessary to roll back the tracing cloth at the end of every twenty-four yards. The tracing cloth soon became dirty or opaque and it was necessary to replace it with a fresh roll, thus entailing a large upkeep.

About this same time the Franklin Continuous Machine was brought out, using a wide celluloid band for transparency, which frequently became wrinkled and soon gave out.

About 1910 three new continuous machines came on the market almost simultaneously. They were the Paragon, Blue Streak and the Pease Automatic, the later combining printing, washing and drying equipment. All these machines were born from the same necessity for greater production.

Credit must be given C. F. Pease for inventing and developing the modern method for printing, washing, potashing and drying the blue-prints by one continuous process, making it possible to increase the amount of prints with the same amount of labor, and producing blue-prints and negative prints of the finest quality at exceptionally low cost.

A number of companies have developed other types of prints and tracings such as tracings made by a modern process from tracings drawn by draftsmen. Often there are several tracings wanted from one particular tracing and this process saves many hours labor by draftsmen. Black and white prints are made direct from tracings. This process is used by architects, engineers and field men who wish to make notes and corrections on plans.

There is also a type of print called ozilid prints which is also used the same as tracings. These are developed by amonia fumes.

There are new processes coming out from time to time, improving the system of producing copies and reproductions made from tracings drawn by draftsmen all over the world, so you see that the idea thought of so many years ago by Sir John Frederick Herchel grew to an immense business employing thousands of people and the means of keeping millions of others employed.

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THE SHELBY FIGHT
BY
JOHN MACDONALD

Shelby, Montana is probably one of the best known towns in the west and for a good reason. On July 4th, 1923 a fight for the world's heavyweight championship was held there and Shelby received world wide publicity. The story of the fight itself has been cussed and discussed too often for retelling but some of the facts leading up to the fight and a major reason for its financial flop may be of interest.

In 1923, Shelby had a population of about 500 people. The Toole county gas and oil fields north of Shelby had recently been opened and a small sized boom was being enjoyed by the town. The only complaint was that there were more oil and gas lease salesmen than there were customers.

A group of business men in the town got together and while partaking of a little of the major Canadian import of that time decided that all Shelby needed was a little advertising to inflate the small boom to one of major proportions.

Jack Dempsey was at the height of his fighting popularity at that time so the boys decided over the last of the emperial containers that if they asked Dempsey to fight in their town, the offer would make the papers all over the country and Shelby would be well advertised. The idea being that the advertising would draw attention to the new oil field and eastern capital would be drawn to Shelby.

A wire was sent to Jack Kearns, Dempsey's manager, offering him $100,000 to match Dempsey against Tom Gibbons of St. Paul. Gibbons was named not because of any belief that he could whip Dempsey but because he lived in St. Paul. The Twin Cities were the nearest big cities to Shelby and a good crowd would come from there to see Gibbons fight. As the tale is now related, the wire was sent half in fun and half in earnest with the hope that it would get Shelby the desired publicity.

The eastern sports writers played up the offer in fine style and Kearns came back with a serious wire saying he would consider the match for a $200,000 guarantee. That put the Shelby group where they had to fish or cut bait and after talking it over they decided to go through with it. The fun really started then.

As everyone knows, that the fight was put on and became a financial fiasco, but not everyone knows one of the major reasons. The "Tribune of Shelby" in its July 27th, 1939 issue in a resumee of the fight states: "Sports writers were the ones who played a prominent part in ruining the fight. Several days before the big battle was to take place, a few of the city sport writers gathered here and attempted to "shake down" parties interested in the fight for $25,000. These "news hounds" had received a hot tip that "this party" that consisted of two persons, were holding out $42,000 of the ticket money for themselves. Their demands were refused and they made good when they stated that if there was "no cut" the fight would not go over from a financial stand point.

In those days there were no such things as good roads in the west and but few fast cars. Travel was mostly by train. Ten days before the Dempsey-Gibbons show, sports writers started news that the fight would be called off. The following day it would be reported that the fight was on then it was off. As a result, there was no surety it would take place until two or three days before the Fourth. By that time special trains were cancelled. The news writers had made their threat good. They had queered the fight."

The Tribune also gives some more facts that are interesting. The arena cost $35,000 seated 40,000 people and was about one third filled for the fight. Arthur Donovan, the third man in the ring and still a prominent eastern referee, received $5,000 for his services. The money for the referee was provided by the late James A. Johnston, Shelby mayor, and Douglas Parker, Sweetgrass banker.

Shelby has never regretted the fight. Almost every public place in town has pictures and old tickets for the fight on display. It is a drawing card for tourists who still ask to be shown the arena site. The town football field occupies part of the old site and Shelby hopes to put a swimming pool and park on the rest of it next summer.

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Motion pictures of a hard-working rat which learned to support itself and two lazy brothers were shown recently before a meeting of the American Psychological Association. Prof. O. H. Mowrer of Yale had arranged a cage so that a rat had to press a lever, in slot-machine fashion, to get a tiny pellet of food. Lever and food slot were side by side, and the three rats learned quickly, one by one, to operate it. Then the lever was put on the side of the cage opposite the food slot, requiring the rat to make a round trip across the cage for every pellet. Again the three soon learned separately how to work it.

Finally all three rats were put in the cage together, thus creating a social problem. The first day the three hovered around the food slot, each unwilling to cross the cage and press the lever. Occasionally one or another would make the trip, invariably he lost his reward. "Production" continued low the second day.

The third day the rats were so ravenous they tried to chew the steel slot to pieces. On the fourth day one rat, with rare judgment, banged the lever quickly three times and scooted across the cage just in time to get the last pellet. Returning to the lever he attacked it with multiple jabs, sometimes releasing six pellets in a second or two. He worked an hour and a half, pressed the lever 1156 times before he and his companions were satisfied.

Rat No. 2 worked it three times, Rat 3 not at all. Both soon became complete parasites. A "class society" had emerged.

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SIDE SWIPES

BY PSYNUS

You can't believe everything you hear -- but you can repeat it.

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The pick of the year's odd auto accidents follow: Frank Miska at Temple, Texas, stepped off the curb. A car whizzed by and ripped off his pants. There stood Mr. Miska on a busy downtown corner in long handled underwear.

Joseph Schoelling, Salt Lake City, crashed into the rear end of a parked car & did a neat nip-up, a perfect loop and landed rightside up on top of the car still astride his bike.

Johnny Holland, 11, of Fredonia, Kansas, stepped on the base of a sign. The iron standard struck him on the forehead, knocking him out and inflicting a severe gash. The sign read SAFETY FIRST.

Mrs. M. T. Morgan, Cleveland, finished eating an apple while driving. Turning to throw the core out, she lost control of the car, turned over in a ditch. The doctor came promptly.

Three year old Bobby Dunn was taking a ride in his buggy when an auto skidded over the curb, struck the buggy and hurled Bobby 15 feet thru the air. Tony Galeto, walking along, reached out and grabbed the child as it whizzed by. Bobby wasn't even scared.

Returning to her car from a shopping tour Miss Marjorie Volke, Tucson, Arizona, noticed a parking ticket stuck under the windshield wiper. She reached out the window for it and lost control of the car. The broken fire hydrant released a geyser -- cost $50.

Three weeks previously John Grela, Waterloo, N.Y., had lost his eyesight in a workshop accident. He was being driven by his physician to see an eye specialist when the doc's car collided with a truck. The impact snapped back Grela's head. His eyesight was instantly restored.

Whitey Long, Elk City, Okla., forgot his piece of punk last July Fourth. So he lighted a firecracker with his cigarette. He then tossed away the cigarette and stuck the firecracker in his mouth. It didn't satisfy. Lost -- one tooth.

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Steering knobs are neither necessary nor desirable, the National Safety Council believes. Knobs on certain doors are still well-handled -- or handled well, as you will.

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More than 4,000 makes of autos have been developed since the first car propelled by an internal combustion engine apeeared in France in 1666, the Smithsonian Institute reported. The U. S. leads with 1,550; Great Britain next with 610 and France third with 400. No specimens of many makes remain, says the Institute.

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Three Point Two is still remembered. It may soon be replaced in the vulgate by Point One Five -- the amount of alcohol in the blood that scientifically brands a motorist as too drunk to drive.

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Quote the Laboratorian who attended the Highway Party. "I couldn't be in worse shape if I was one of my girl's new hats."

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Salesman to Richter (pre Dec. 25): "Now this one has a feature you'll like. If your kid monkeys with it while you're at the Lab, this Pullman explodes and scares hell out of him."

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Norby Tibbetts packs his wallet in his hip pocket -- makes him feel like a football hero -- carrying the pigskin around the end zone.

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This is a true story, tho it appears to be but a twist on a very old one: A young Billings matron wrote to Ely Culbertson asking him whether the dealer should complete the cut. With Culbertson's answer came a bill for $10. The young woman then asked her lawyer if she had to pay the bill. The lawyer said "No". You've guessed it -- she received a bill for $15 from the lawyer.

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Altho unemployment is a primary U.S. problem, finding the right job is an important secondary one. Last year two smart, jobless young men started an unofficial agency to do it. At year's end their enterprise had grossed $100,000 and they had become leading authorities on job hunting. Lyle M. Spencer & Robert K. Burns now have 55 researchers & writers studying industrial trends, new businesses, new professions, the 22,000 ways to make a living in the U.S. Their findings are published in a monthly magazine: "Vocational Trends". Sample findings:

Fastest-growing business is the slot machine industry, which has increased ten-fold since 1929, employs 70,000.

Each year there are 100,000 new jobs for truck drivers.

It is just a notion that air conditioning and Diesel engineering will employ vast numbers of new workers. Last year 100,000 went to Diesel schools, only 4,000 got jobs. Diesel engineering recruits most of its workers from gasoline engineers. Similarly, air conditioning employs made-over plumbers.

Shortest-handed profession is research. It has 50,000 workers, needs many thousands more.

Instead of studying stenography (over-manned), girls should learn to operate business machines (undermanned).

The war is likely to help printers, aviation, chemical & railroad workers; is bad for cotton & tobacco farmers.

Suggested steps for getting a job: 1. Buy a loose-leaf notebook. 2. Keep a record of findings about yourself and possible careers. 3. Prepare yourself for a particular career before you start hunting.

Biggest factor in getting and keeping a job is oomph: at least half of the men and women who lose jobs (except in Depression layoffs) are fired for maladjusted personalities.

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He will just do nothing at all,
He will just sit there in the noonday sun
And when they speak to him, he will not
answer them,
Because he does not care to.
He will stick them with spears and put
them in the garbage.
When they tell him to eat his dinner,
he will just laugh at them,
And he will not take his nap, because
he does not care to.
He will just sit there in the noonday sun.
He will go away and play with the Panda.
And when they come to look for him
He will put spikes in their eyes and
put them in the garbage.
And put the cover on.
He will not go out in the fresh air - -
or eat his vegetables
Or make wee-wee for them, and he will
get as thin as a marble.
He will not do nothing at all.
He will just sit there in the noonday sun.

The above is the bath-tub chant of a four-year-old son copied down by his mother.

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New Yorkers may watch the construction of a new skyscraper, Air Lines Terminal, thru holes bored in the surrounding fence -- at various heights to accommodate people of all sizes. Close to the sidewalk are holes marked: "For Dogs Only" -- one specifies "Pekinese".

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In Fort Collins, Colorado State College empiricists slowly killed a pack of white rats by feeding them a coed's diet.

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On New Year's Eve, a Negro in Harlem added a new word to the language. He stood on a street corner and shouted: "Hallelouyear!" Before morning, revelers all over the city were shouting "Hallalouyear!"

"HALLALOUYEAR!!"

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BIG STORM
By John H. Richmond

It was March 29, 1938. The worst blizzard of modern times was in progress. It had been snowing and blowing hard since 11 p.m. the night before, changing from beautiful spring weather to a howling winter blizard within six hours. The suddeness of the storm stranded many motorists along the road and away from home, causing much concern to the Highway Department and the public in general. Although the temperature was above zero, many people were suffering from exposure because of the sudden change. Any motorist might have left home the evening of the 28th without even a topcoat and then found by 1 a.m. of the 29th that the perfectly good road he had traveled a few hours before was impassable and the balmy breeze had changed to an icy blizzard of almost hurricane proportions.

By 8 a.m. the 29th, snow drifts were piled four to eight feet high over most of northern Montana. For thirty-six hours the blizzard raged and during this time every piece of equipment and every employee of Division Seven was doing his utmost to relieve the suffering. From the clerks answering an incessant inquiry about the condition of the roads to the men running snow plows, it was a hard and weary task well done by an efficient force. Outstanding in this conglomeration of snow plows, patrol cars and telephone calls was the level-headed supervision of those in charge. Calmly directing, cautioning and keeping every piece of equipment running smoothly at top speed.

I played only a small but interesting part in this relief of human worry and suffering, but a part that I can describe easier than any other. I was assigned a trip to Shelby. With a supply of clothes, tools and some needed repairs I began the 104 mile journey. If you have never driven a car when you can see only the radiator cap at short intervals, and you stay on the road by driving "by feel", you have missed a thrill of a lifetime. To get to your destination on a day like March 29, 1938, could only be surpassed in self esteem by some phenomenal feat like a solo flight across the Atlantic Ocean.

The wind subsided for a while and the first thirty miles were covered in short time. From there on going was very slow and many things happened to detain me. As the wind velocity increased, visibility decreased, and I can think of no more welcome sight than the white center line on a road when snow is blowing past you so fast you can't tell whether or not you are moving.

The first encounter with distress was called to my attention by someone shouting, and when I stopped a man came up and informed me he was off the road and stuck. I had passed his car one hundred yards back in the borrow ditch without seeing it. I pulled his automobile up on the road and as we were going in the same direction, he followed me to the next town.

In the eight hours it took me to travel the 104 miles, I had the same experience in varying degrees five separate times. I overhauled a carburetor, was stuck once and helped five motorists on the trip. Once I was four feet from a snow plow before I saw it. I was thankful that it was the rear end of the truck that I saw.

I arrived in Shelby at 6 p.m., tired but glad to be at the journey's end. It was still snowing and blowing. The snow drifts were blocking the roads in spite of every effort to keep them open. Snow plow crews found that thirty minutes after they had opened a road it was closed again. Many warnings were sent out to keep motorists from making unnecessary trips, but despite this warning many cars were stalled on the highways and rescue crews were kept busy throughout the night. Many of the snow plow crews and the shop mechanics worked long or continuous shifts. The snow that fell was wet and as night came on, it froze, causing its removal to be extremely difficult.

I was kept busy throughout the night repairing equipment. With the equipment doing its utmost under adverse conditions, the upkeep was away above normal. If you have ever replaced a clutch shifter fork in an F.W.D. stalled in a snow drift with an icy wind blowing snow so hard it cuts your face, and with hands so numb you can't tell whether they are your own or not, then you know how I spent three hours of the night. The balance of the night was spent doing minor repair jobs and assisting snow plow crews.

Morning came with more snow, but the wind had abated and the evidence showed that for this particular part of the country the storm had centered around east and north of Shelby. Most of the roads were blocked in that part of the country despite the fact that snow plows had worked all night. No fatal casualties were reported as far as I know.

After four hours sleep I was called to do a minor repair job on a Ford one-way snow plow and as the road to Havre was reported open I began the journey home. This was an uneventful trip, the roads being a little slow but not hazardous. I arrived in Havre about 6 p.m. I had had a very tiring trip but one that I would hate to have missed. Any hardships that I endured were well paid for in experience. I was glad i could do my little bit towards keeping a well trained organization working at its best in an emergency.

March 31st was a beautiful day. The sun shone brightly on a blanket of snow that was drifted in places ten and twlve feet deep and through this ran a ribbon of highways clear of all snow. Mother Nature's wrath was spent. She had showed she could out-do any previous attempts that "old timers" could remember. She had changed ideal spring weather to a havoc-raising blizzard and then as if reconsidering her motive, made the change back to prove that "anything can happen to Montana weather."

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If we remember a part of our 3 Rs correctly, number 8 usually follows number 7, which means that the Miles City number is next.

We expect a rip-roarin' issue from Slim and his boys. Their cover idea is already on file, and by all indications the Division Eight employees are looking forward to toutin' their stompin' grounds.

Powder River! Let 'er buck!

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Curves & Angles

Mr. and Mrs. Bennett MacIntyre of Anaconda are the parents of a son, born December 24. Mrs. MacIntyre, whom we remember as Kay McCarthy, was employed in the Accounting Division. Horace Williams says he feels almost like a grandfather.

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Annwillis Lynch should have taken sick leave rather than a vacation the first part of December. It so happened that she spent most of her time in bed due to a severe cold.

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Elizabeth Baldwin, along with about 200 other skiiers, is very happy to have all this nice snow. Apparently the prayer offered at the ski banquet was answered, or maybe Santa Claus decided to make the ski fans the gift they wanted most. Anyway, Elizabeth is now trying out her new skiing equipment and is in her glory once more. "Howdie" Wright is doing all right, too.

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Millie Dolin's parents came from Great Falls, and her brother was over from Missoula to spend Christmas with her.

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Fernetta Rice hung her stocking up for Santa Claus at Forsyth, where she spent the holiday with her family.

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Mary Dimich received one snow shoe for Christmas. We wonder if she will get the mate on New Year's or have to wait until next year. Anyway, that's a start and one is better than none.

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The hunting season may be over, but here's a tip for you men. Nickie Carlsten, of the Highway Patrol, is a regular "Dead Eye Dick". She got her limit in ducks this fall, which should put some of you to shame. She wasn't so luck in getting a deer, but then what about a few of you "he-men" hunters?

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Our vote of thanks to the party committee who made our annual Christmas get-together another festive affair.

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So far we haven't heard of any of the girls wearing Christmas diamonds, so all is quiet on the "highway" front for the time being.

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Has anyone not seen the calendar from the engineering company that Horace Williams has been displaying? "Willie" would make money if he charged admission. We used to think that such companies were interested in road machinery, but we have changed our mind.

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Helen Finn Jones took a respite from the switchboard between Christmas and New Year's. She spent some of the time in Deer Lodge visiting her family and the remainder doing as little as possible in Helena.

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The latest addition to our personnel is Marian McCarthy of Anaconda, who has joined the forces of the Planning Survey.

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All Center Line readers are no doubt familiar with that sparkling section of Roads & Streets called "Observations by the Way", written by a modest gentleman who disguises his identity under the nom de plume, "A. Puddle Jumper".

In the December issue he carries a paragraph highly complimentary to Center Line and our staff cartoonist. He also states that he is considerably abashed due to a caustic crack made in our October number.

Center Line apologizes for thoughtlessness approaching discourtesy. We are really flattered to have any of our material used. We are like the well known mountaineer who invited a passing traveller to dinner. The meal consisted of one small dish of potatoes. The host rose to the occasion by urging "Have a spud, stranger. Have two spuds! Take damn nigh all of them!"

So help yourself, Puddle Jumper. We are for you.

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Sally Rand, who is undergoing bankruptcy in San Francisco, denies that her young ladies smuggled any assets out of the Treasure Island concessions. The girls had nothing up their sleeves.

...The New Yorker.....

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A rich vein of gold, of unknown size, has been found in Georgia. It should be dug up promptly and moved to Kentucky, where it belongs.

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D. A. McKinnon, State Highway Engr.

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- B. J. Ornburn, Bridge Design Engr.
- R. A. Stephenson, Br. Const. Engr.
- A. G. Swaney, Chief R/W Agent
- E. O. Parsons, R/W Engineer
- R. H. Fletcher, Plans & Traffic Engr.
- Guy J. Johnson, Materials, Engr.
- E. A. Peterson, R/W Attorney

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- D. L. Cheney, Bituminous Engineer

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- Scott P. Hart, Maintenance Engr.
- W. E. Bawden, Equipment Engineer

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- J. L. Maloney, Chief Accountant

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- O. J. Jawort, Director

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